AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A write power determining method of an optical disk inserted in an optical disk drive before writing to the inserted optical disk, the method comprising:

obtaining a push-pull signal amplitude at at least two measuring positions, including an inner circumferential portion and an outer circumferential portion of a recording surface, in a radial direction of the inserted optical disk;

determining a relationship of an optimum write power with respect to a radial position of the inserted disk based on the obtained push-pull signal; and

controlling the optimum write power depending on the radial position of the inserted optical disk based on the determined relationship;

wherein, with respect to the optimum write power information associated with the radial position of the disk, if the optimum write power at an arbitrary outer circumferential measuring position relative to an inner circumferential reference measuring position is defined as PO, PO is calculated and determined by an equation of:

$$PO = [1 + \{(PPI/PPO) - 1\} \times PUP] \times PI$$

or

$$PO = [1 + \{1 - (PPO/PPI)\} \times PUP] \times PI$$

where:

PPI: the push-pull signal amplitude obtained at the inner circumferential reference measuring position or at a position in proximity to the inner circumferential reference measuring position;

PPO: the push-pull signal amplitude obtained at the arbitrary outer circumferential measuring position;

PUP: a ratio coefficient of power up based on a disk radius; and

PI: the optimum write power by test writing at the inner circumferential reference measuring position.

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Currently amended) The write power determining method of claim 1 [[4]], wherein:

with respect to the optimum write power information associated with the radial position of the disk, if the optimum write power of a disk of radius r at an arbitrary outer circumferential non-measuring position is defined as P, P is or has been calculated and determined by an equation of:

$$P = (PI - PO)/(ri - ro) \times r + (PO \times ri - PI \times ro)/(ri - ro)$$

where:

ri: a disk radial position associated with the inner circumferential reference measuring position or a position in proximity to the inner circumferential reference measuring position; and

ro: a disk radial position corresponding to the arbitrary outer circumferential measuring position at which the PPO described in claim 1 [[4]] is obtained.

6. (Currently amended) A [[The]] write power determining method of an optical disk inserted in an optical disk drive before writing to the inserted optical disk ~~claim 1~~, the method comprising:

obtaining a push-pull signal amplitude at at least two measuring positions, including an inner circumferential portion and an outer circumferential portion of a recording surface, in a radial direction of the inserted optical disk;

determining a relationship of an optimum write power with respect to a radial position of the inserted disk based on the obtained push-pull signal; and

controlling the optimum write power depending on the radial position of the inserted optical disk based on the determined relationship;

wherein, [[:]] with respect to the optimum write power information associated with the radial position of the disk, if the optimum write power at the arbitrary outer circumferential measuring position relative to the inner circumferential reference measuring position is defined as PO, PO is or has been calculated and determined by an equation of:

$$PO = [1 + \{(PPI/PPO) - 1\} \times PUP] \times Pro\ [Pr]$$

or

$$PO = [1 + \{1 - (PPO/PPI)\} \times PUP] \times Pro\ [Pr]$$

where:

PPI: the push-pull signal amplitude obtained at the inner circumferential reference measuring position or at a position in proximity to the inner circumferential reference measuring position;

PPO: the push-pull signal amplitude obtained at the arbitrary outer circumferential measuring position;

PUP: a ratio coefficient of power up based on a disk radius; and

Pro: the optimum power associated with a disk radial distance of ro at the arbitrary outer circumferential measuring position at the time when there is no difference in push-pull amplitude between the inner circumferential position and the outer circumferential position.

7. (Previously presented) The write power determining method of claim 6, wherein:

with respect to the optimum write power information associated with the disk radial position, if the optimum write power at the arbitrary outer circumferential non-measuring

position relative to the inner circumferential reference position is defined as Prb, Prb is or has been calculated and determined by equations of:

$$Prb = PCR \times Pr$$

where:

Pr: the optimum power associated with a disk radial distance of r at the arbitrary outer circumferential non-measuring position at the time when there is no difference in push-pull amplitude between the inner circumferential position and the outer circumferential position; and

PCR: a power control coefficient associated with a disk radius of r at the arbitrary outer circumferential non-measuring position of the optical pickup,

$$PCR = \{(PCI - PCO)/(ri - ro)\} \times r + \{(PCO \times ri) - (PCI \times ro)\}/(ri - ro)$$

where:

ri is a disk radial distance at the inner circumferential reference measuring position or at a position in proximity to the inner circumferential reference measuring position;

ro: a disk radial distance at the arbitrary outer circumferential measuring position;

PCI: a power control coefficient at the inner circumferential reference measuring position or a position in proximity to the inner circumferential reference measuring position; and

PCO: a power control coefficient at the arbitrary outer circumferential measuring position,

$$PCI = 1$$

$$PCO = [1 + \{(PPI/PPO) - 1\} \times PUP]$$

or

$$PCO = [1 + \{1 - (PPO/PPI)\} \times PUP].$$

8. (Previously presented) The write power determining method of claim 1, wherein the relationship of the optimum write power with respect to the radial position is determined with an interpolation between an optimum write power obtained in the inner circumferential portion and the outer circumferential portion of the inserted optical disk.

9. (Previously presented) The write power determining method of claim 1, further comprising storing information associated with the optimum write power into memory.

10. (New) The write power determining method of claim 6, wherein the relationship of the optimum write power with respect to the radial position is determined with an interpolation between an optimum write power obtained in the inner circumferential portion and the outer circumferential portion of the inserted optical disk.

11. (New) The write power determining method of claim 6, further comprising storing information associated with the optimum write power into memory.